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GEORGIA PRIMARY EDUCATION PROJECT

MONTHLY REPORT
FEBRUARY 1 – FEBRUARY 29

Contract No. AID-114-C-09-00003
USAID COTR: Medea Kakachia
Chief of Party: James Wile

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MONTHLY REPORT
February 1 – February 29, 2012

During this reporting period, G-PriEd activities continued to focus on building the overall framework and designing/developing materials for the school-based Professional Development Leader (PDL) program to be rolled out by national trainers in reading and math in Georgian and non-Georgian pilot schools throughout the country in September. Based on the G-PriEd Year 1 Work Plan (presented to USAID in December 2011), the pilot training program was to begin in early March, following the selection of the national trainers from Tbilisi and the regions. However, in close coordination with the project COTR, G-PriEd has decided to push the pilot training program back to September 2012. This change in schedule will enable G-PriEd staff to

- coordinate more closely with the Ministry of Education and Science (MES) on the development of the diagnostic assessments;
- agree with the MES on the sampling methodology to select the pilot schools; and
- prepare additional materials (supplementary instructional materials) in time for the roll-out of the pilot in September.

Accomplishments. After several useful discussions with the Ministry during the development of the sampling strategy, G-PriEd was able to secure approval of the project-developed strategy from the Minister of Education and Science. The MES will now use the agreed upon sampling strategy to identify the first cohort of schools.

Cross-component activities. To ensure we have enough regional trainers in underserved regions in time for the September roll-out, the G-PriEd team has issued a call to recruit nine additional regional trainers in reading and seven additional regional trainers in math. These numbers are in addition to the 56 candidates the project has already recruited. Once the full number of candidates have been identified, the G-PriEd team will work with USAID and the MES to select the final cohort of national trainers.

G-PriEd continues to collaborate closely with the MES and USAID in building a robust training scheme, refining training modules, and elaborating the technical details for the upcoming pilot, including the composition and design of the trainee cohorts, trainer numbers, and distribution. A detailed account of this month's activities is provided below, organized by output.

Output 1: Reading fluency and comprehension outcomes improved in grades 1-6

Input 1.1: Reading instruction improved

Create Reading Working Group (Task 1). Although no formal reading working groups have been created to date, G-PriEd staff meet routinely with different members of the Ministry and its agencies and have made progress towards assembling issue-based groups that will meet on an ad hoc basis to discuss and advance the reading-related tasks in the work plan. This ensures that all stakeholders are informed about each activity from the beginning.

For example, Reading Improvement Specialist Paata Papava met with a group of staff from the Teacher Professional Development Center (TPDC), who agreed to start working on the following issues:

- Identifying the competencies associated with effectively teaching reading and identifying ways to incorporate these competencies into teacher standards;
- Identifying ways to incorporate support for improved elementary grade literacy in the new standards for school principals.

Facilitate activities of the working group in applying national reading standards and developing assessment tests for each grade between 1 and 6 (Task 2). G-PriEd staff, short-term experts, and MES staff have continued to identify the range of competencies necessary for basic and higher-level elementary grade reading, building on the information in Georgia's new language-arts curriculum. They developed a draft comprehensive matrix that illustrates the interrelations among the five basic reading components in the Georgian curriculum and expected reading outcomes (with associated indicators). This matrix will support G-PriEd and its counterparts to:

- Identify skills to be tested through the diagnostic reading assessment;
- Identify teaching skills and techniques to be included in the professional development modules, accompanied by relevant sample lessons.

- *Develop in-classroom assessment tools*. The development of the Georgian diagnostic assessment of reading is progressing, though it has also faced challenges. Given the schedule challenges of project start-up, project staff have not been able to find a time when Ministry staff were available to develop a fuller understanding of the international uses of and theory behind diagnostic assessments, which is crucial to moving forward.

  The concept of diagnostic assessments is new in Georgia. Therefore, G-PriEd staff must support the MES in distinguishing between diagnostic/formative assessments and national achievement assessments, as the latter is much more commonly used. To help MES personnel in general better understand the underlying concepts associated with diagnostic assessment (and its role in diagnostic teaching), COP Wile and COTR Medea Kakachia designed a comprehensive workshop on the general principles of diagnostic assessment as requested by the deputy director of the National Center for Education Quality Enhancement (NCEQE). This workshop is pending final input from NCEQE and is expected to be held in March.

  Aside from the broader concepts associated with diagnostic assessments, G-PriEd staff also need to work with MES staff to address several specific topics. The ability to read is influenced by unique characteristics of a language (grammar, vocabulary, text structure, genre, phonemes, etc.) and the specific cultural context in which that language is used. As a result, before any reliable assessment can be developed, both test developers and test administrators need to have a shared understanding of the purpose and function of the test. To reach this shared understanding, G-PriEd has convened panels of Georgian linguists to help identify key features of the orthography, grammar, phonics, and social conventions of the

language. Project staff have further begun to align these elements of language with the language curriculum where there are matches. In addition, to continue with assessment development, the project needs to conduct research on several fundamental literacy issues. These include identifying high-frequency words, establishing effective oral reading rates, and objectively defining text readability levels. Next, G-PriEd staff will work to establish consensual assessment criteria for these elements.

Given these needs, Chief of Party Jim Wile and Mr. Papava met with National Curriculum and General Education Development Department (NCGEDD) staff to discuss a process for developing shared knowledge of such key concepts as readability and word frequency, the foundations of a diagnostic reading assessment. A four-phase process was designed, will be initiated in March, and will conclude with recommended readability standards by July 1. The process includes the following components: (1) raising awareness on text readability issues, (2) creating a study group to investigate the best international practices in identifying readability measures, (3) developing a draft set of readability criteria for each grade, and (4) field testing passages that meet the readability criteria and finalizing the criteria. The four-phase process will be carried out by G-PriEd in close collaboration with the NCGEDD and NCEQE.

To begin the process of identifying appropriate high-use words to create readable passages for each grade, Mr. Papava — together with short-term expert Ketevan Datukishvili — developed a plan for creating a list of frequently used words, syllables, and letter combinations. Linguists Tamar Makharoblidze, Tinatin Bolkvadze, and Tamar Chanturia developed the graded passages that will be used in the diagnostic assessments for each grade (which will be revised based on the readability criteria). In addition, Mr. Papava continued developing the conceptual matrix for the creation of the reading and math diagnostic assessments. The conceptual matrix describes the purpose of the Georgian diagnostic assessment and its role in the overall process of formative assessment. It also describes the components of the assessment tool and their connection to the national curriculum. Once the document is finalized, it will be provided to MES for review and approval and introduced at the diagnostic assessment workshop.

Facilitate activities of the working group to review current teacher guidelines in reading for Georgian and ethnic minority students (Task 3).[1] Mr. Papava, together with the module writers, reviewed the teacher guidelines published by the TPDC, NCC, and Norwegian Refugee Council to identify the best instructional techniques to highlight in the supplementary materials that will accompany the reading professional development modules (such as paired readings, important word exercises, readers' theater, word pairs, completing-the-sentence exercises, story maps, etc.).

Facilitate the development of the paper-based and electronic instructional content (Task 4). This work will start in Quarter 3. We expect to consult the NCGEDD and TPDC regarding the available supplementary resources (hard copy and electronic) and the existing gaps. To support the development of hard-copy leveled readers, we plan to bring an international expert to Georgia to run a teacher's circle that will create the

[1] Note: any work with the ethnic minority schools will depend on the needs of the MES.

materials. To support the development of electronic resources, we plan to engage a team of an international expert and a local expert to review existing international resources and present them to the MES to identify the best options to pursue.

With MES and working group, identify pilot schools through a stratified random selection (at least 270 Georgian and 50 ethnic minority schools) and launch pilot (Task 5). In collaboration with the MES and its Education Management Information System (EMIS) agency, M&E Specialist Sophie Malashkhia worked with technical advisor, Dr. Iago Kachkachishvili, to develop a rationale for G-PriEd's sampling strategy. For the Ministry's consideration, Dr. Kachkachishvili developed three sampling strategy models: the first based on the number of schools, the second based on the number of teachers, and the third based on the number of students. Dr. Wile, Ms. Malashkhia, and COTR Kakachia discussed the pros and cons of each of the models at several meetings where they decided that using students as the foundation of the strategy was the best way to create a meaningful distribution of schools.

Georgia currently has approximately 300,000 elementary school students in 1,847 public Georgian-language schools, 272 public minority-language schools, and 248 private schools. In the end, the project selected 316 schools as its sample, which is slightly below our contractual target of 320. Annex A explains in detail the rationale for selecting 316 pilot schools as the G-PriEd sample.

In the project's sample, 209 schools are Georgian-language schools (185 public and 24 private) and 107 are minority-language schools (106 public and 1 private). The document describing the detailed sampling strategy of the pilot school selection has been finalized and submitted to the MES for approval (see Annex A).

Train grade 1-6 teachers in pilot schools to conduct reading courses and tests (including fluency and comprehension); support them throughout the year; and conduct assessment at the end of the pilot year (Task 6). The G-PriEd team continued their work to create three modules covering teaching reading, teaching reading across the curriculum, and creating environments that support literacy that will be used to train PDL teachers (those that will coach their fellow teachers in the G-PriEd-supported teaching techniques). The draft modules for reading and coaching have been developed and were translated into Georgian. Reading Improvement Director Papava presented the plan NCGEDD for revising and editing of the modules before sending them to the MES for final review and approval.

- *Pilot school-based professional development leader preparation*. During this month, international consultant Rita Bean reviewed the draft coaching module developed at the writers' workshop in January. Teacher Effectiveness Director Keti Chachkhiani discussed Dr. Bean's feedback with the module writers and incorporated it into the final draft version. The final draft was translated into Georgian.

- *Evaluate school-based PDL training*. In addition to the pre- and post-testing tools for PDL teachers developed in January, the module writers and Ms. Chachkhiani developed a comprehensive list of the training participant portfolio items (such as homework assignments, reflection papers, self-evaluation questionnaires, lesson modeling and observation protocols, summaries of the pre- and post-conferences,

etc) and draft rubric for the evaluation of the participant portfolio. The draft rubric is intended to be used by the national trainers to evaluate the quality of the assignments completed by training participants. It is based on three main criteria: (1) relevance of homework content to the topic; (2) understanding of assignment as demonstrated by homework content; (3) completeness of the homework assignment. The rubric uses the following ratings: "excellent," "good," and "needs improvement." It also contains specific performance characteristics arranged in levels indicating the degree to which the expectations were met.

- *Pilot teacher professional development program*. After identifying the pilot schools, the G-PriEd team plans to hold a one-day workshop for school principals from the selected schools in each of Georgia's 11 regions to provide them with information about the school-based professional development program to be implemented at their schools. During the workshop, the G-PriEd team will also inform them about the criteria and procedures they should use to nominate PDL teachers. For the workshop, Ms. Chachkhiani and Dr. Wile developed a pamphlet to be distributed to principals that informs them about the goals of USAID's G-PriEd project, the importance of school-based professional development, and ways principals can support PDLs to fulfill their role. G-PriEd staff have translated this document into Georgian and will share it with USAID and MES stakeholders for feedback and suggestions.

Input 1.2: Reading delivery systems improved

Facilitate working group inputs to revise the national reading assessment methodology (Task 7). This task will be planned on demand. Project staff will meet with members of NCEQE to discuss the possibility of work under this task.

Develop remediation and promotions programs (Task 11).

- *Launch reading campaign*. G-PriEd is currently planning to engage a communications specialist in mid-April to discuss with MES staff the benefits of planning a reading campaign to spread interest in boosting children's reading skills. In addition, he/she will work with MES to identify ways to engage parents more broadly in their children's schooling.

- *Develop summer initiative*. This work will start in Quarter 3.

Output 2: Math competencies improved in grades 1-6

During the reporting period, three activities were carried out to advance the goals of this component:

- A draft Conceptual Framework for Diagnostic Assessment in Mathematics has been developed as requested by MES. The document is now subject to revision and discussion with USAID.
- Georgia's national standards in mathematics specifying outcomes have been translated into English and sent to G-PriEd's international consultants for developing a math planner matrix.

- In response to the MES' request, information on existing diagnostic assessments in math in different countries, including the United States, United Kingdom, and Sweden has been collected, compiled, and compared. The document detailing this information has been drafted and is now subject to discussion with COP Wile and COTR Kakachia.

In the implementation of Component 2 work, each activity was actively discussed with MES math experts, including those from the NCGEDD, NCEQE, and the TPDC. A focus of these discussions was the collaborative design of the conceptual framework for diagnostic assessment in math.

Input 2.1: Math instruction improved

Create Math Working Group (Task 1). Although no formal math working groups have been created to date, G-PriEd staff meet routinely (on an ad hoc basis) with different members of the Ministry and its agencies. This ensures that all stakeholders are informed about each activity right from the start.

Facilitate the activities of the working group to review the teacher guidelines in math for Georgian and ethnic minority schools and support development of guidelines for ethnic minority students (Task 2).[2] G-PriEd staff, short-term experts, and MES partners have identified the core competencies necessary for Georgia's new primary-grade mathematics curriculum. These core competencies constitute the basis for the development of the diagnostic assessment in math as well as teacher professional development modules.

Facilitate the activities of the working group to develop paper-based and electronic instructional content (Task 3). This work will start in Quarter 3. First, G-PriEd staff will review existing electronic resources. In the meantime, G-PriEd staff will continue discussions with the TPDC and NCGEDD about their needs and suggest resources based on the gaps identified through the review of existing resources.

Pilot new technology-based math methodology for grades 1-6 in 270 Georgian and 50 ethnic minority schools (Task 4). As described above under Output 1, the training modules described below are based on a diagnostic approach to teaching. G-PriEd staff developed three modules, including drafts of all lesson plans and training materials for review and revision by local experts. The three modules covered the following topics:

- Teaching math in elementary grades
- Teaching math across the curriculum, and
- Creating environments that support math

G-PriEd staff have maintained consistent communication with three international math experts — Ted Hull, Don Balka, and Ruth Miles — who have completed editing and refining the structure of all three modules.

[2] Note: any work with the ethnic minority schools will depend on the needs of the MES.

- *Pilot school-based professional development leader preparation*. During this month, international consultant Rita Bean reviewed the draft coaching module developed at the writers' workshop in January. Teacher Effectiveness Director Keti Chachkhiani discussed Dr. Bean's feedback with the module writers and incorporated it into the final draft version. The final draft was translated into Georgian.

- *Evaluate school-based professional development leader training*. In addition to the pre- and post-testing tools for PDL teachers developed in January, the module writers and Ms. Chachkhiani developed a comprehensive list of the training participant portfolio items and draft rubric for the evaluation of the participant portfolio. The draft rubric is intended to be used by the national trainers to evaluate the quality of the assignments completed by training participants. It is based on three main criteria: (1) relevance of materials to the topic; (2) understanding of coaching demonstrated by the materials; (3) completeness of the materials. The rubric uses the following ratings: excellent, good, and needs improvement. It also contains specific performance characteristics arranged in levels indicating the degree to which the expectations were met.

- *Pilot teacher professional development program*. After identifying the pilot schools, the G-PriEd team plans to hold a one-day workshop for school principals from the selected schools in each of Georgia's 11 regions to provide them with information about the school-based professional development program to be implemented at their schools. During the workshop, the G-PriEd team will also inform them about the criteria and procedures they should use to nominate PDL teachers. For the workshop, Ms. Chachkhiani and Dr. Wile developed a pamphlet to be distributed to principals that informs them about the goals of USAID's G-PriEd project, the importance of school-based professional development, and ways principals can support PDLs to fulfill their role.

- *Develop assessment tools*. Considerable progress was made during the month to finalize the items and format of the Georgian diagnostic assessment of math (grades 1-6). Math Improvement Director Lasha Kokilashvili received a set of comprehensive and detailed comments from counterparts at the NCC and the NCEQE, and has resolved the majority of issues through in-person meetings. As a result, the Georgian diagnostic assessment of math is nearing final draft stage. A finalization session was proposed by NCGEDD (to include representatives from the NCGED, NCEQE, and G-PriEd staff and technical advisors) to take place in mid-March.

- *Provide additional equipment*. Considerable progress was made on finalizing the procurement of resources for counterpart agencies to support reading improvement, math improvement, and teacher preparation. Through a discussion with the director of the NCGEDD, it was agreed that all supplemental instructional materials related to math would be incorporated into the math professional development modules and would be distributed through the G-PriEd training sessions. In addition, G-PriEd staff discussed with the acting chief of party of USAID's New Economic Opportunities (NEO) project the possibility of NEO-supported start-up companies providing/manufacturing items requested by NCC as math manipulatives (wooden counting cubes, magnetic alphabet/number

cards, etc.). It was agreed that such companies be encouraged to compete on local tenders for the procurement of these items.

Input 2.2: Math delivery systems improved

Review/revise national assessment methodology (part of Task 4). This task will be planned on demand. Project staff will meet with members of NCEQE to discuss the possibility of work under this task.

Develop remediation and promotions programs (Task 6).

- *Launch math media campaign*. G-PriEd is currently planning to engage a communications specialist in mid-April to discuss with the MES planning a math campaign to raise interest in boosting children's math skills. In addition, he/she will work with MES to identify ways to engage parents more broadly in their children's schooling.

- *Discuss promotion strategies*. This work will start in Quarter 3.

Output 3. Teacher training delivery systems strengthened

Input 3.1: Teacher retention policies improved

Advise the MES in creating effective induction and retention programs for teachers (Task 1). This work is scheduled to start in Quarter 2.

Propose effective mechanisms for developing a professional cadre for rural and mountain schools (Task 2). This work is scheduled to start in Quarter 2.

Input 3.2: In-service training improved

Help establish Teacher Houses, develop clear policies, and effective professional development approaches (Task 3). This work is scheduled to start in Quarter 3.

Support the Teacher Houses in attracting at least 10 reading and 10 math experts (Task 4). This work is scheduled to start in Quarter 3.

Support the Teacher Houses in nurturing at least 10 reading and 10 math experts (Tasks 5). This work is scheduled to start in Quarter 3.

Provide series of ToT sessions to at least 50 teacher trainers of reading and math (Task 6). As mentioned above, G-PriEd is preparing to increase the number of its national trainer candidates in reading and math with additional trainers from the Georgian regions.

Input 3.3: Pre-service training improved

Review current education programs of universities (Task 7). This work is scheduled to start in Quarter 3.

ANNEX A: SAMPLING STRATEGY

Proposed Sampling Strategy for Selecting the First Cohort of Schools

Introduction

Georgia Primary Education Project (G-PriEd) is a five-year program funded by the United States Agency for International Development (USAID) to provide comprehensive assistance to the education system in Georgia to support the successful implementation of the Georgian Ministry of Education and Science's new elementary grades curriculum in reading in the Georgian language and math. These innovations are designed to lead to significantly improved learning outcomes for Georgian and ethnic minority students.

G-PriEd in collaboration with Ministry of Education and Science, Education Management and Information System (EMIS) agency present this proposed plan for selecting schools to participate in the first cohort of professional development in reading and math. This professional development program in diagnostic teaching is integrated with additional resources including classroom based diagnostic assessments, supplemental leveled reading materials, math manipulatives, e-learning resources, and a cadre of National Trainers in eleven regions in Georgia. Additional schools will be added in subsequent cohorts until at least 80 per cent of all schools (public and private) are incorporated in the school-based continuous professional development program.

A Student-focused Sampling Rationale

In order to select an appropriate and meaningful distribution of schools to make up this initial cohort, a decision was made to use students as the sampling unit. Therefore, the research population was defined as all grade 1-6 students in Georgian and ethnic minority public and private schools. This population equals approximately 300,000 students in total. These students are currently served by 1847 Georgian public schools, 248 private schools, and 272 non-Georgian public schools.

This student-focused rationale reflects the overall goal of this quality improvement initiative as measured in terms of impact on student learning. The student-focused rationale also organizes strategic resources in ways that reflect the demographic distribution of children in Georgia and targets interventions in proportion to school-aged populations. As the education quality support activities continue to expand semester after semester, the overall goal will be to provide coverage for as many Georgian children as possible until program saturation is reached at 80 percent.

The Influence of Location

The support for implementing the new Georgian curriculum for elementary education follows a national roll-out plan. That is, beginning with the initial cohort of participating schools and throughout subsequent semesters of expansion, the quality improvement initiative will contain schools in each of eleven regions across Georgia. Within each region, schools will be incorporated according to student population (large, medium, and small enrollments) in proportion to their regional and national demographics.

The Proposed Sampling Plan

As a result, sample unity for first year of the G-PriEd project was defined both for Georgian and non-Georgian schools. In total 316 schools were defined as a sample unities, of which 209 were Georgian instruction and 107 for Non-Georgian instruction schools. A summary of the sampling rationale is given below.

Table 1. Georgian and Non-Georgian Schools/Students and Projected Number of Schools to be Sampled in Each Region

Region	Sample Size in Georgian Schools	Sample Unities of Georgian Schools	Public/ Private	Sample Size in Minority Schools	Sample Unities of Minority Schools	Public/ Private
Adjara	2633	26	23/3			
Guria	775	10	10/0			
Tbilisi	8439	29	17/12			
Imereti	3800	41	37/4			
Kakheti	2015	19	18/1	1142	6	
Mtskheta-mtianeti	584	9	9/0			
Racha-Lechkhumi & qvemo Svaneti	179	7	7/0			
Samegrelo & zemo Svaneti	2278	26	24/2			
Samtskhe-javakheti	651	10	10/0	2714	43	
Kvemo Kartli	2030	15	14/1	6231	58	57/1
Shida kartli	2004	17	16/1			
Total	**25388**	**209**	**185/24**	**10086**	**107**	**106/1**

Project Design

Learning in Georgia is student-centered, and the project impact will be derived from the learning improvements of students; therefore, **the sampling strategy for the 5-year impact study project will be student –based.**

The sampling strategy is commensurate with the study design which is quasi-experimental longitudinal. This design considers two aspects:

1) Study of 1-6 grade students in the experimental schools (where the project activities will be implemented) and other groups of schools in the same districts and with similar conditions where the project will not be implemented; and
2) Study of the experimental and non-experimental groups over the period of the project implementation, September 2012- September 2016.

The first aspect considers that approximately 10% of students in Georgian language schools and 40% of students in the ethnic minority schools will be included in the experimental group (project implementation activities) in year one, September 2012-September 2013. This will be matched with the compatible number of Georgian and ethnic minority students (approximately 10% and 40 % correspondingly)

In the following year, September 2013-Septemebr 2014, the number of students in the experimental groups will increase to 40 % of students in Georgian language schools and 80% of those in the ethnic minority schools. The compatible numbers of the corresponding all students will be included in the control group, except for ethnic minority groups, where the number of students in the "control groups" will be significantly lower than in the experimental groups (20%-80%)

In the period of September 2014-Septemebr 2015, the number of students in the experimental groups in Georgian language schools will increase to 80%, and to 100 %- in the ethnic minority schools.

The second aspect will consider the differences of results in all groups over the time of the project implementation. In this regard, the study conducted in September 2012 with the experimental and "control" groups will be considered a base-line study; all following studies at the end of 2013, 2014, and 2015 school years will be considered as a follow-up study in the time series of the project implementation

Major considerations for the sampling strategy for the year one of the study

The learning in Georgia is student-centered, and the overall impact of GpriED project will be derived from the learning improvements of students; therefore, **the sampling strategy will be student –based.**

In addition, because the students are learning in schools, the sampling strategy will also count the total number of schools covered in each components of the study. Because the conditions in different types of schools vary, it is necessary for the research to study conditions, its problems and opportunities for each type of schools.

Research Population is students of 1-6 grades of entire Georgia, segregated by different criteria (ethnicity, size).
Table 2 describes the different data of the research population:

- Total number of students of 1-6 grades in all schools of Georgia[3], segregated by Georgian/non-Georgian school students.
- Total number of schools of Georgia, segregated by Georgian/non-Georgian schools, also by size (large, medium, small)
- Average number of students in each type of schools

Table 2

	Ethnicity		School Size		
	Georgian	Non-Georgian	Large	Medium	Small
Students	253,881	25,216[4]	181435	50594	47068
Total students	**279097**		**279097**		

[3] Except Abkhazeti region.
[4] Since target regions for non-Georgian students and schools are Kakheti, Kvemo Qartli and Samtskhe-Javakheti, the total number of students as a sample frame (25 216) reflects these regions. Otherwise the total number of non-Georgian students in Georgia is 30786.

	Ethnicity		School Size		
	Georgian	Non-Georgian	Large	Medium	Small
Schools	2095	272	557	501	1309
Total schools (public and private)	**2367**		**2367**		
Average students Per school	**121**	**93**	**326**	**101**	**36**

Sample size will be different for Georgian and ethnic minority schools. Approximately 10% of student population of Georgian schools will be included in the experimental groups of the pilot study of project implementation, in 2012-2013; the same percentage of students will be included in the "control" groups. This percent will be different concerning ethnic minority students. Approximately 40% of non-Georgian students will be involved in the study in 2012-2013: the percentage of the later is higher due to the smaller size of research population in this segment, to maintain that the research has sufficient sample size.

The number of the pilot schools should be going under pilot study, as it will be justified below, is:

a) 209 Georgian schools (public and private) in 11 regions of Georgia;[5]
b) 107 non-Georgian schools in 3 regions of Georgia.

Sample sizes of students (1-6 grades), their regional distribution and distribution by ethnicity are given in the Table 3:

Table 3. Sample Sizes of Students and Regional Distribution

Region	10% of Georgian School Students	40% of Non-Georgian School Students
Adjara	2633	
Guria	775	
Tbilisi	8439	
Imereti	3800	
Kakheti	2015	1142
Mtskheta-mtianeti	584	
Racha-Lechkhumi & qvemo Svaneti	179	
Samegrelo & zemo Svaneti	2278	
Samtskhe-javakheti	651	2714
Kvemo Kartli	2030	6231
Shida kartli	2004	
Total	*25388*	10086[6]

Sample sizes provide the following margins of error:

[5] In the list of regions Abkhazeti is not included.
[6] 10086 is the 40% of the total number of non-Georgian students (1-6 grades) in 3 regions (Kakheti, Kvemo Qartli and Samtskhe- Javakheti), which is 25216

Table 4. Margin of Error for Georgian-Language Schools[7]

Region	Margins of error 99% of reliability
Adjara	1.8%
Guria	3.4%
Tbilisi	1.0%
Imereti	1.5%
Kakheti	2.1%
Mtskheta-Mtianeti	3.9%
Racha-Lechkhumi & Qvemo Svaneti	7.0%
Samegrelo & Zemo Svaneti	2.0%
Samtskhe-Javakheti	3.7%
Kvemo Kartli	2.1%
Shida Kartli	2.1%
Total	*0.6%*

Table 5. Margin of Error for Minority-Language Schools

Region	Margins of error 99% of reliability
Kakheti	2.5%
Samtskhe-Javakheti	1.6%
Qvemo Qartli	1.0%
Total	*0.8%*

[7] To define margins of error, the following formula has been used:

$$d = z\sqrt{\frac{P(1-P)}{n}}\sqrt{\frac{N-n}{N-1}}$$

Where:
z is the coefficient for 99% of reliability, which equals to 2.5758
P is permissible probability (which is 0.5)
N is General unity (sampling frame), which is 253881 students of Georgian schools
n is the sample size, which is 25388 (or the segregated data by regions)
d (final result) – is the absolute size of error

The sample strategy will be designed according to **stratified random sampling** procedure.

1. Sampling strategy for Georgian schools:

On the **first stage** of sampling the total number of students as sample units (and schools), and the total number of students by regions will be identified following these steps:

- The total number of 1-6 students in each region of Georgia will be defined
- The average number of per school students (1-6 grades) in each region will be defined
- 10% out of total number of students (1-6 grades) in each region will be defined and total calculated
- The calculated number of students (10%) in each region will be divided on average number of per school students, which gives a number of schools that should be selected in each region for piloting

The Table 6 describes the above mentioned steps.

Table 6.

Region	Total # of schools	Total # of students	Average # of students	10% of students	Projected # of schools to be included
Adjara	255	26334	103	2633	26
Guria	101	7746	77	775	10
Tbilisi	289	84394	292	8439	29
Imereti	400	37998	94	3800	41
Kakheti	190	20150	106	2015	19
Mtskheta-Mtianeti	91	5843	64	584	9
Racha-Lechkhumi & Qvemo Svaneti	68	1788	26	179	7
Samegrelo & Zemo Svaneti	264	22775	86	2278	26
Samtskhe-Javakheti	104	6514	63	651	10
Kvemo Kartli	159	20298	128	2030	15
Shida Kartli	174	20041	115	2004	17
Total	**2095**	*253881*	*121*	*25388*	*209*

Therefore, in total, 25 388 of 1-6 students in 209 schools will be included in experimental groups for year 1. These numbers will be matched in the "control" groups for year 1.

On the **second stage,** the total number of samples in each of the large, medium, and small size schools will be identified in each region following these steps:

1. Schools will be differentiated into 3 categories according to schools size (students' number) in schools:

- Small schools: from 1 up to 299 students

- Average schools: 300-599 students
- Big schools: 600 and more students

2. Number of schools in each region (which have been selected on the first stage) will be distributed according to 3 categories (small, average, big) of schools, separate for public and private schools.

Tables 7 and 8 show distribution of public and private schools according to school size (small, average, big) in each region:

Table 7: Distribution of Georgian public schools according to school size

Region	School size	Sum of 1 - 6 grade students	Average of 1 – 6 grade students	10% of (1-6) students	# of schools to be included
Public					
Adjara	1. 1-299	5754	39	575	15
	2. 300-599	4108	103	411	4
	3. >=600	13509	329	1351	4
Adjara Total		**23371**	**102**	**2337**	**23**
Guria	1. 1-299	2661	40	266	7
	2. 300-599	1515	89	152	2
	3. >=600	3030	233	303	1
Guria Total		**7206**	**74**	**721**	**10**
Tbilisi	1. 1-299	421	53	42	1
	2. 300-599	1446	103	145	1
	3. >=600	69202	461	6920	15
Tbilisi Total		**71069**	**413**	**7107**	**17**
Imereti	1. 1-299	8009	37	801	22
	2. 300-599	7457	90	746	8
	3. >=600	20181	306	2018	7
Imereti Total		**35647**	**97**	**3565**	**37**
Kakheti	1. 1-299	3035	42	304	7
	2. 300-599	6724	105	672	6
	3. >=600	9822	223	982	4
Kakheti Total		**19581**	**109**	**1958**	**18**
Mtskheta-mtianeti	1. 1-299	1940	30	194	7
	2. 300-599	1169	106	117	1
	3. >=600	2591	236	259	1
Mtskheta-mtianeti Total		**5700**	**66**	**570**	**9**
Racha-Lechkhumi & qvemo Svanet	1. 1-299	1108	18	111	7
Racha-Lechkhumi & qvemo Svanet Total		**1740**	**26**	**174**	**7**
Samegrelo & zemo Svaneti	1. 1-299	6205	41	621	15
	2. 300-599	5206	98	521	5
	3. >=600	9238	264	924	4

Region	School size	Sum of 1 - 6 grade students	Average of 1 – 6 grade students	10% of (1-6) students	# of schools to be included
Samegrelo & zemo Svaneti Total		**20649**	**86**	**2065**	**24**
	1. 1-299	2512	32	251	8
	2. 300-599	1662	98	166	2
Samtskhe-javakheti	3. >=600	2271	324	227	1
Samtskhe-javakheti Total		**6445**	**63**	**645**	**10**
	1. 1-299	2497	35	250	7
	2. 300-599	3339	108	334	3
Kvemo Qartli	3. >=600	13164	329	1316	4
Kvemo Qartli Total		**19000**	**134**	**1900**	**14**
	1. 1-299	2756.0	38	276	7
	2. 300-599	4845	103	485	5
Shida Qartli	3. >=600	11323	252	1132	4
Shida Qartli Total		**18924**	**116**	**1892**	**16**
Public Total		**229332**	**124**	**22933**	**185**

Table 8: Distribution of Georgian private schools according to school size

Region	School size	Sum of 1 - 6 grade students	Average of 1 – 6 grade students	10% of (1-6) students	# of schools to be included
Private					
Adjara	1. 1-299	503	42	50	1
	2. 300-599	828	92	83	1
	3. >=600	1632	326	163	1
Adjara Total		**2963**	**114**	**296**	**3**
Tbilisi	1. 1-299	1742	31	174	6
	2. 300-599	3188	110	319	3
	3. >=600	8395	262	840	3
Tbilisi Total		**13325**	**114**	**1333**	**12**
Imereti	1. 1-299	484	24	48	2
	2. 300-599	671	96	67	1
	3. >=600	1196	239	120	1
Imereti Total		**2351**	**73**	**235**	**4**
Kakheti	1. 1-299	172	25	17	1
Kakheti Total		**569**	**57**	**57**	**1**
Samegrelo & zemo Svaneti	1. 1-299	543	39	54	1
	2. 300-599	717	102	72	1
Samegrelo & zemo Svaneti Total		**2126**	**89**	**213**	**2**
Kvemo Qartli	**1. 1-299**	**355**	**32**	**36**	1
Shida Qartli Total	**1. 1-299**	**1117**	**102**	**112**	**1**
Private Total		**24549**	**99**	**2455**	**24**

On the **third stage** the preliminary defined number of schools will be randomly chosen in each region. The total number of samples in each region will be met.

2. Sampling model for non-Georgian schools:

On the **first stage** of sampling the following steps will be fulfilled:

- The total number of students (1-6 grades) in 3 regions of Georgia (Kakheti, Kvemo Qartli and Samtskhe Javakheti) will be defined
- The average number of per school students in each of 3 regions will be defined
- 40% out of total number of students (1-6 grades) in each of 3 regions will be defined
- The calculated number of students (40%) in each region will be divided on average number of per school students, which gives a number of schools that should be selected in each region for piloting

The Table 9 describes the above mentioned steps.

Table 9

Region	Total # of schools	Total # of students	Average # of students	40%	# of selected school
Kakheti	15	2855	190	1142	6
Samtskhe-javakheti	110	6784	62	2714	43
Kvemo Kartli	147	15577	106	6231	58
Total	*272*	25216	93	10086	107

On the **second stage** of sampling the following procedure will be fulfilled:

1. Schools will be differentiated into 3 categories according to schools size (students' number) in schools:
    1. Small schools: from 1 up to 299 students
    2. Average schools: 300-599 students
    3. Big schools: 600 and more students

2. Number of schools in each of 3 regions (which have been selected on the first stage) will be distributed in proportion to different non-Georgian language schools (Azeri, Armenian and Russian);

3. Each number of non-Georgian schools will be distributed according to 3 categories (small, average, big) of schools;

Table #11 shows distribution of schools according to language (Azeri, Armenian and Russian) and school size (small, average, big) in each region:

Table 10

Region	Language	School size	Sum of1-6	Average of 1-6	40%	Total
Public						
Kakheti	Azeri	2. 300-599	139	139	56	1
		3. >=600	2542	318	1017	3
	russian	1. 1-299	154	39	62	2
	Armenian	1. 1-299	20	20	8	0
Kakheti Total			2855	190	1142	6
Samtskhe-Javakheti	Russian	1. 1-299	26	7	10	1
		2. 300-599	87	87	35	0
		3. >=600	437	219	175	1
	armenian	1. 1-299	3005	38	1202	32
		2. 300-599	1548	103	619	6
		3. >=600	1681	210	672	3
Samtskhe-Javakheti Total			6784	62	2714	43
Kvemo Qartli	Azeri	1. 1-299	2048	41	819	20
		2. 300-599	3092	102	1236	11
		3. >=600	6994	241	2798	11
	Russian	1. 1-299	162	23	65	3
		2. 300-599	477	119	191	2
		3. >=600	1637	409	655	1
	Armenian	1. 1-299	693	36	277	8
		2. 300-599	474	119	190	2
Kvemo Qartli Total			15577	106	6181	58
Total			**25216**	**93**	**10086**	**107**

On the **third stage** the preliminary defined number of schools will be randomly chosen in each of 3 regions.